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Office Action of 9/21/2005
Amendment dated 11/08/05

REMARKS/ARGUMENTS

Claims 12-19 and 26-29 stand rejected as being directed to non-statutory subject matter. In addition, such claims stand rejected as being unpatentable over U.S. Pat. No. 5,638,273 (Colner) in view of U.S. Pat. No. 5,311,562 (Palusamy). Reconsideration of the rejections is solicited in view of the following remarks.

101 Rejections

The Office Action states that claims 12-19 and 26-29 are directed to non-statutory subject matter, and more specifically states that such claims are directed to a data structure. For the reasons elaborated in greater detail below, applicant respectfully submits that the foregoing claims are directed to statutory subject matter and requests that these grounds of rejection be removed.

Regarding independent claim 26, this claim is directed to a system for identifying critical faults in unranked fault data collected from a fleet of locomotives. As set forth in claim 26, the system comprises memory configured to collect from a group of locomotives respective locomotive data indicative of each fault logged over a predetermined period of time. The system further comprises a processor configured to classify respective faults in the collected locomotive data based on criteria recited in the claim. Based on the structural elements recited in claim 26, applicant respectfully submits that claim 26 is not directed to a data structure. Moreover, the claimed invention as a whole is useful and accomplishes a practical result in the field of locomotives. This fault classification is useful because instead of reacting with the same level of urgency to every possible fault that may occur in the locomotive, aspects of the claimed invention allow to focus on critical faults. The critical faults may be indicative of a malfunction that, for example, would indicate imminent complete loss of operational capability of the locomotive. That is, the identification of critical faults produces a "useful, concrete and tangible result." State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Consequently, applicant respectfully request that this grounds of rejection be removed.

As amended, claim 12 is directed to a computer-implemented method for identifying critical faults from unranked fault data collected from a fleet of locomotives. Claim 12 recites the following actions or steps: a) collecting from a group of the fleet of

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locomotives respective locomotive data indicative of each fault logged over a predetermined period of time; b) classifying respective faults in the collected locomotive data based on criteria recited in the claim; and c) storing any faults found to be critical in a database comprising critical faults. For the reasons discussed above, claim 12 accomplishes a useful result. Consequently, applicant respectfully request that this grounds of rejection be removed.

Claim 17 is directed to a system for identifying critical faults from unranked fault data collected from a fleet of locomotives. The system comprises memory configured to collect from a group of a fleet of locomotives respective locomotive data indicative of each fault logged over a predetermined period of time. First, second and third classifiers are configured to classify the collected locomotive data based on criteria set forth in the claim. A database is coupled to store any faults classified as likely to result in an imminent locomotive mission failure. The stored faults constitute the plurality of critical faults. For the reasons discussed above, claim 17 accomplishes a useful result. Consequently, applicant respectfully request that these grounds of rejection be removed.

103 Rejections

Coiner Is Of Limited Relevance

Coiner, the main reference applied in the Office Action to reject claims, describes a vehicle data storage system that includes an on-board computer control device, which collects and records data supplied to it from a variety of sensors. The device allows storing normal operational data at one frequency (i.e., one sampling frequency) while storing data surrounding an incident at a higher frequency (i.e., a higher sampling frequency). See Abstract, Summary of the Invention, and FIG. 5 of Coiner. The problem that Coiner purports to solve relates to limited memory capacity for storing data in an onboard device. See Coiner, column 1, line 30 et. seq. Coiner further explains that the dual sampling frequency used in his device provides the user with both low-resolution operational data covering a long period of time, and high-resolution incident data for incidents designated as being potential faults. See Coiner, column 2, line 56 et. seq.

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Upon review of Coiner, the applicant cannot find any description or relevant teaching in Coiner regarding any analysis of the faults and/or the data associated with the faults so as to rank or rate the criticality of the faults. This is not surprising since Coiner's consistent theme throughout his description is the purported ability to sample data at two distinct sampling frequencies based on a desired sampling resolution. Nowhere is Coiner concerned with classifying unranked fault data that may be collected from a fleet of locomotives in order to identify a smaller set of faults, such as critical faults, that may require an urgent level of scrutiny. It is respectfully submitted that one of ordinary skill in the art would not find in Coiner any relevant teaching or suggestion for the fault classification (e.g., triage) techniques provided by the claimed invention.

Claim 12 sets forth the following criteria for classifying the unranked fault data:

1.   Relative frequency of fault occurrence;

2.   Number of locomotives affected in the group; and

3.   Expected level of reduction in locomotive operational performance.

Claim 12 further sets forth operational relationships (e.g., basis) for using the foregoing classifying criteria. Coiner nowhere teaches or suggests criteria for classifying faults from unranked fault data collected from a fleet of locomotives, much less teaches or suggests any relationships for utilizing such criteria. For example, the Office Action refers to col. 5, lines 30-42 of Coiner as describing criteria item number 2 above. However, such excerpt of Coiner refers to FIG. 2, a graph that merely depicts the point in time when records are stored in an operational storage area 208 of a vehicle during a recording cycle. This has nothing to do with using the number of locomotives affected in the group as one of the criteria for classifying the unranked data. An example that illustrates the practical utility of the claimed invention is described starting at page 19, line 29 through page 21, line 19 in applicant's specification.

As discussed above, Coiner is merely concerned with choosing a sampling frequency that may be appropriate for obtaining a desired resolution and meeting data storage constraints. The only common item that applicant can discern between claim 12 and excerpts of Coiner cited by the Examiner is the appearance of the word "frequency." However, the use of the term "frequency" in claim 12 of the present application relates to the repetitiveness of fault occurrences as one of the basis for

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ranking such faults. However, this has nothing to do with the meaning of the word frequency as used by Coiner. There the word frequency is used in the sense of a sampling frequency at which data samples are taken. This has nothing to do with the concepts of the present invention. Applicant respectfully submits that Coiner is not applicable to the structural and operational relationships recited in claim 12 since the excerpts of Coiner that allegedly obviate claim 12 merely describe the distinct sampling frequencies techniques discussed above. However, as noted above, this has nothing to do with the concepts set forth in claim 12.

Palusamy Fails To Remedy the Shortcomings of Coiner

Palusamy is cited for teaching a collecting of sample data for assessing operational conditions and for predicting maintenance requirements in a database. Nowhere Palusamy teaches or suggests any structure or operational relationships for identifying critical faults in unranked fault data collected from a fleet of locomotives. Palusamy fails to overcome the fundamental deficiencies discussed above regarding Coiner. In view of the foregoing remarks, it is respectfully asserted that the Coiner/Palusamy references, singly or in combination, fail to teach or suggest the structural and/or operational relationships recited in claim 12. Accordingly, it is respectfully submitted that the Coiner/Palusamy combination fails to render obvious claim 12 under the statutory standards of §103. Since each of the dependent claims from independent claim 12 includes the structural and/or operational relationships respectively recited in such independent claim, it is also respectfully submitted that the Coiner/Palusamy combination also fails to obviate each of such dependent claims.

Claim 17 is directed to a system for identifying critical faults in unranked fault data collected from a fleet of locomotives. Claim 17 specifically recites first, second and third classifiers that in combination allow classifying a fault as likely to result in an imminent locomotive mission failure. It is respectfully asserted that the Coiner/Palusamy references, singly or in combination, fail to teach or suggest the structural and/or operational relationships recited in claim 17. Accordingly, it is respectfully submitted that the Coiner/Palusamy combination fails to render obvious claim 17 under the statutory standards of §103. Since each of the dependent claims from independent claim 17 includes the structural and/or operational relationships

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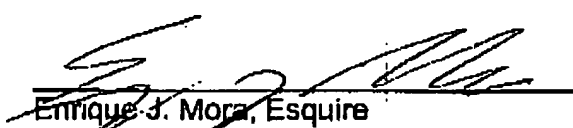Amendment dated 11/08/05

respectively recited in such independent claim, it is also respectfully submitted that the Coiner/Palusamy combination also fails to obviate each of such dependent claims.

Claim 26 is directed to a system for identifying critical faults in unranked fault data collected from a fleet of locomotives. Claim 26 recites a processor configured to classify respective faults in the collected locomotive data based on specifically recited criteria and operational relationships set forth therein. It is respectfully asserted that the Coiner/Palusamy references, singly or in combination, fail to teach or suggest the structural and/or operational relationships recited in claim 26. Accordingly, it is respectfully submitted that the Coiner/Palusamy combination fails to render obvious claim 26 under the statutory standards of §103. Since each of the dependent claims from independent claim 26 includes the structural and/or operational relationships respectively recited in such independent claim, it is also respectfully submitted that the Coiner/Palusamy combination also fails to obviate each of such dependent claims.

It is respectfully submitted that each of the claims pending in this application recites patentable subject matter and it is further submitted that such claims comply with all statutory requirements and thus each of such claims should be allowed.

The Examiner is invited to call the undersigned if clarification is needed on any aspects of this Reply/Amendment, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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